"IN THE OPINION OF THIS HOUSE, THE LONE WORKER CAN NO LONGER MAKE A MAJOR CONTRIBUTION TO RADIO DEVELOPMENT"

RADIO SECTION DEBATE, 25TH FEBRUARY, 1952

Mr. G. Parr and **Dr. A. J. Biggs, B.Sc.,** proposed the motion; they stated that the researches which had made modern radiocommunication possible had been carried out mainly by men such as Hertz and Marconi, who had worked substantially alone. They had, however, worked when the field was completely unexplored and they could therefore proceed in what might be called a random fashion. But times had now changed; the field had narrowed considerably, and what remained unexplored was better suited to the work of a team than of a lone worker.

To undertake research now the lone worker required a well-equipped and very expensive laboratory. If he were to keep up with the rate of progress of modern research, time was all-important, and he could not afford the time required to make his own apparatus.

Much new information was daily becoming available on the subject of radiocommunication, and the modern research team usually possessed some form of abstracting service which could filter the information and provide the team with that which was relevant to the line of research being undertaken. It was difficult for the lone worker to obtain such facilities, and he must therefore personally read through a large amount of literature which contained information not immediately necessary to his research.

The regular exploitation of radiocommunication did not follow until many years after Maxwell's discovery of electromagnetic waves. This lapse of time was due to the method of working of the lone worker, and, as one speaker put it, "Science can no longer wait for the chance experiment of the cloistered genius."

The modern counterparts of the early workers, e.g. Sir Robert Watson-Watt, Sir Edward Appleton, Sir John Cockcroft and Sir Clifford Paterson, had recognized that a change had taken place in methods of research and appreciated the importance of research teams and their leaders.

In times such as these it was imperative that research along many lines at present being undertaken should proceed rapidly. As an example of this the development of radar demanded that the solution to a large number of problems should be made available as quickly as possible, so requiring the work of large research teams.

The lone worker nowadays should co-operate with a team, whose atmosphere was conducive to research.

Mr. M. G. Scroggie, B.Sc., and **Mr. W. A. Scarr, M.A.,** opposed the motion and suggested that the original idea was the major contribution to development rather than its detailed working out and that such ideas could come only from individuals and not from research teams.

The well-known story was told of the boy who fished with a bent pin and caught the largest fish, whilst those with the gear and tackle demanded by a modern fisherman caught nothing. The lone worker did not require all the complicated apparatus of the laboratory; in certain instances this apparatus might be

more of a hindrance than a blessing, since it tended to take away that freedom of thought and action which were sources of strength to the lone worker.

The research team was subject to the guidance and direction of, and frequently inspired by, its leader, but it was only away from any atmosphere of control that the original idea would be born and hence the major contribution made.

It was contended that the field of research in radiocommunication was still largely unexplored. The original research had been undertaken by lone workers, and if it was agreed that they could no longer serve a useful purpose, some major change must have taken place which now made it necessary for research to be carried out by teams. It was suggested that no such change had taken place and that it was for the lone worker to contribute the original idea, which might then, if necessary, be developed by the team.

Heaviside was cited as the personification of the lone worker, and the opposers of the motion concluded their argument by asking how he would have worked in the present circumstances.

In the course of the debate an attempt was made to define the term "lone worker." It was suggested that if it was taken literally there could be no such person, since nobody could be completely independent of the results of the researches of his fellow workers; hence the term could be used only in its modest sense. It was not necessary for the lone worker to isolate himself; he could be a member of a large organization and yet by this definition he could still be a lone worker.

One speaker, although opposing the motion, suggested that it was perhaps very difficult now for the lone worker to make a major contribution to radiocommunication because of the too rigid controls which now surrounded research.

Lines of research being undertaken at the present were said to demand the work of a team, and one speaker instanced research on nuclear fission as an example of this. He considered that all the workers who had made fundamental discoveries in radio communication during the last 20 years had been members of teams.

With regard to the control imposed upon the members of a research team by its leader, the need to work to a budget made this control essential, since one could not afford to waste money and time in continuing along unproductive lines of research.

The motion was lost by a large majority.